

What is claimed is:

- 1 *Sub A8* > 1. A composite comprising:
2 a dielectric matrix; and
3 nano magnetic particles contained in the matrix.
- 1 2. The composite according to claim 1, wherein the nano magnetic
2 particles are non-spherical.

- 1 *sub A8* > 3. The composite according to claim 2, wherein spherical nano magnetic
2 particles are added to the non-spherical nano magnetic particles.

- 1 4. The composite according to claim 1, wherein the nano magnetic
2 particles are spherical.

- 1 *sub A9* > 5. The composite according to claim 1, wherein the matrix is made of one
2 selected from the group consisting of silica, alumina and hydrosilsesquioxane.

6. The composite according to claim 1, wherein the matrix is made of one
selected from the group consisting of polyimide, PMMA and methyl silsesquioxane.

- 1 7. The composite according to claim 1, wherein the nano magnetic
2 particles are superparamagnetic.

- 1 *sub A10* > 8. The composite according to claim 7, wherein diamagnetic nano
2 magnetic particles are added to the superparamagnetic nano particles.

- 1 *Sub C9* > 9. The composite according to claim 8, wherein the diamagnetic nano
2 particles include indium (In).

- 1 10. The composite according to claim 1, wherein the nano magnetic
2 particles are diamagnetic.

1 *Sub AII* > 11. The composite according to claim 1, wherein the nano magnetic
2 particles consists of (γ -Fe₂O₃), chromium oxide (CrO₂), europium oxide (EuO), NiZn-
3 ferrite, MnZn-ferrite or Yttrium-iron garnet.

1 12. The composite according to claim 2, wherein the nano magnetic
2 particles include indium.

1 *Sub C* > 13. A semiconductor device comprising:
2 a semiconductor substrate; and
3 an insulator made of a composite having a dielectric matrix, and nano
4 magnetic particles contained in the matrix.

1 14. The semiconductor device according to claim 13, wherein the nano
2 magnetic particles are non-spherical.

1 15. The semiconductor device according to claim 13, wherein the nano
2 magnetic particles are spherical.

1 16. The semiconductor device according to claim 13, wherein the nano
2 magnetic particles are superparamagnetic.

1 17. The semiconductor device according to claim 15, wherein diamagnetic
2 nano magnetic particles are added to the superparamagnetic nano particles.

1 *Sub C2* > 18. An optical device comprising:
2 a transparent dielectric matrix; and
3 a composite having nano magnetic particles contained in the matrix.

1 19. The optical device according to claim 18, wherein the nano magnetic
2 particles are non-spherical.

1 20. The optical device according to claim 18, wherein the nano magnetic
2 particles are spherical.

1 21. A method for manufacturing a composite comprising the steps of:
2 forming nano magnetic particles; and
3 distributing the nano magnetic particles into a dielectric matrix.

1 22. The method according to claim 21, wherein the step of forming nano
2 magnetic particles includes the steps of mixing a cation surfactant with an anion
3 surfactant of a metal salt and subjecting the mixture to chemical sedimentation to
4 form non-spherical nano magnetic particles.

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